		Exploring the Ex	
		2010 Scien	
Standards of Learning			
Virginia Science			
Grade K			
Activity/Lesson	State	Standards	
			The student will conduct investigations in
			which nonstandard units are used to
Finding the Center of			measure the length, mass, and volume of
Gravity Using Rulers	VA	SCI.K.K.1.e	common objects;
			The student will conduct investigations in
			which observations and predictions are
Finding the Center of			made for an unseen member in a sequence
Gravity Using Rulers	VA	SCI.K.K.1.f	of objects;
			The student will conduct investigations in
			which a question is developed and
Finding the Center of			predictions are made from one or more
Gravity Using Rulers	VA	SCI.K.K.1.g	observations;
			The student will investigate and understand
			that the position, motion, and physical
			properties of an object can be described.
Finding the Center of			Key concepts include relative positions and
Gravity Using Rulers	VA	SCI.K.K.4.e	speed of objects.
			The student will investigate and understand
			that materials can be reused, recycled, and
Finding the Center of			conserved. Key concepts include changes
Gravity Using Rulers	VA	SCI.K.K.10.b	can be observed and measured.
		Exploring the Ex	 xtreme
		2010 Science	
		Standards of Le	earning
Virginia Science			
Grade 1			
Activity/Lesson	State	Standards	
			The student will conduct investigations in
			which observations are made from multiple
Finding the Center of			positions to achieve a variety of perspectives
Gravity Using Rulers	VA	SCI.1.1.1.b	and are repeated to ensure accuracy;
			The student will conduct investigations in
Finding the Center of			which inferences are made and conclusions
Gravity Using Rulers	VA	SCI.1.1.1.f	are drawn about familiar objects and events;
			The student will conduct investigations in
Finding the Center of			which a question is developed from one or
Gravity Using Rulers	VA	SCI.1.1.1.g	more observations;
			The second secon
			The student will conduct investigations in
Finding the Center of		001444	which simple investigations and experiments
Gravity Using Rulers	VA	SCI.1.1.1.j	are conducted to answer questions.

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			The student will investigate and understand
			that moving objects exhibit different kinds of
Finding the Center of			motion. Key concepts include pushes or pulls
Gravity Using Rulers		SCI.1.1.2.c	can change the movement of an object.
Gravity Comig Raioro		0011111210	can change the merement of an especi
		Exploring the E	xtreme
		2010 Scien	
	;	Standards of Le	earning
Virginia Science			
Grade 2			
Activity/Lesson	State	Standards	
			The student will conduct investigations in
Finding the Center of			which observations and predictions are
Gravity Using Rulers	VA	SCI.2.2.1.a	made and questions are formed;
			The student will conduct investigations in
Finding the Center of			which conditions that influence a change are
Gravity Using Rulers	VA	SCI.2.2.1.g	identified and inferences are made;
			The student will conduct investigations in
Finding the Center of			which observations and data are
Gravity Using Rulers	VA	SCI.2.2.1.k	communicated;
			The student will conduct investigations in
			which simple physical models are designed
Finding the Center of			and constructed to clarify explanations and
Gravity Using Rulers	VA	SCI.2.2.1.I	show relationships; and
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		Exploring the E 2010 Scien	
	9	Standards of Le	
Virginia Science			,g
Grade 3			
Activity/Lesson	State	Standards	
			The student will plan and conduct
			investigations in which predictions are
Finding the Center of			formulated using a variety of sources of
Gravity Using Rulers	VA	SCI.3.3.1.b	information;
			The student will plan and conduct
Finding the Center of			investigations in which questions are
Gravity Using Rulers	VA	SCI.3.3.1.g	developed to formulate hypotheses;
			The student will plan and conduct
Finding the Center of			investigations in which data are gathered,
Gravity Using Rulers	VA	SCI.3.3.1.h	charted, graphed, and analyzed;
			The student will plan and conduct
Finding the Center of			investigations in which inferences are made
Gravity Using Rulers	VA	SCI.3.3.1.j	and conclusions are drawn;
			The student will plan and conduct
Finding the Center of			investigations in which data are
Gravity Using Rulers	VA	SCI.3.3.1.k	communicated;
			The student will plan and conduct
Finding the Center of		001001	investigations in which models are designed
Gravity Using Rulers	VA	SCI.3.3.1.I	and built

The student will plan and conduct envestigations in which current applications are used to reinforce science concepts.  The student will plan and conduct envestigations in which data are communicated;
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nferences, and predictions;
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eveloped to formulate hypotheses; The student will plan and conduct nvestigations in which data are gathere harted, graphed, and analyzed; The student will plan and conduct nvestigations in which inferences are m and conclusions are drawn; The student will plan and conduct nvestigations in which data are ommunicated; The student will plan and conduct nvestigations in which models are designed built The student will plan and conduct nvestigations in which current application are used to reinforce science concepts.  The student will plan and conduct nvestigations in which distinctions are n mong observations, conclusions, offerences, and predictions; The student will plan and conduct nvestigations in which predictions and necessare made, and conclusions a trawn based on data from a variety of

	V/1	001.0.0.1.1	The student will plan and conduct
Jet Propulsion	VA	SCI.5.5.1.f	experimental situation are identified;
			investigations in which constants in an
occi ropulsion	V/3	001.0.0.1.6	The student will plan and conduct
Jet Propulsion	VA	SCI.5.5.1.e	dependent variables are identified;
			investigations in which independent and
Activity/Lesson	State	Standards	The student will plan and conduct
Grade 5	Ctoto	Ctondordo	
Virginia Science			
What had a Control	I	Standards of Lo	earning
		2010 Scien	
		Exploring the E	
Moment Arms	VA	SCI.4.4.2.a	and speed;
of Gravity Using	1,74	001.4.4.0	motion is described by an object's direction
Changing the Center			mation is also with a discount of the other discount
Moment Arms	VA	SCI.4.4.1.m	science concepts.
of Gravity Using		001.4.4.4	current applications are used to reinforce
Changing the Center			
Moment Arms	VA	SCI.4.4.1.I	solve needs; and
of Gravity Using	1,74	001444	explanations, demonstrate relationships, and
Changing the Center			models are constructed to clarify
Lines	VA	SCI.4.4.2.b	mass;
Gravity Using Plumb	1,74	SCI 4 4 0 5	changes in motion are related to force and
<u> </u>			changes in motion are related to force and
Finding the Center of		301.4.4.2.d	by an object's direction and speed,
Lines	VA	SCI.4.4.2.a	by an object's direction and speed;
Gravity Using Plumb			investigations in which motion is described
Finding the Center of		001.4.4.1.6	The student will plan and conduct
Lines	VA	SCI.4.4.1.e	sources;
Gravity Using Plumb			drawn based on data from a variety of
Finding the Center of			inferences are made, and conclusions are
			investigations in which predictions and
L.: 100	v/\	551.7.7.1.a	The student will plan and conduct
Lines	VA	SCI.4.4.1.a	inferences, and predictions;
Gravity Using Plumb			among observations, conclusions,
Finding the Center of			investigations in which distinctions are made
Clarity Coming Maiors	-/-	551.4.4.2.5	The student will plan and conduct
Gravity Using Rulers		SCI.4.4.2.b	are related to force and mass;
Finding the Center of			investigations in which changes in motion
Cravity Coming Maiors	V/3	001.7.7.1.1	The student will plan and conduct
Gravity Using Rulers		SCI.4.4.1.i	and basic line graphs;
Finding the Center of			recorded, analyzed, and displayed using bar
			investigations in which data are collected,
Clavity Coing Ruleis	V/1	001.4.4.1.g	The student will plan and conduct
Finding the Center of Gravity Using Rulers		SCI.4.4.1.g	experimental situation are identified;
			investigations in which constants in an

			The student will plan and senduet
			The student will plan and conduct
\/aatarina	1,70	001554:	investigations in which inferences are made
Vectoring	VA	SCI.5.5.1.i	and conclusions are drawn;
			The student will plan and conduct
			investigations in which models are
		201 4 :	constructed to clarify explanations,
Vectoring	VA	SCI.5.5.1.j	demonstrate relationships, and solve needs
			The student will plan and conduct
			investigations in which data are collected,
			recorded, analyzed, and communicated
Center of Gravity,			using proper graphical representations and
Pitch, Yaw	VA	SCI.5.5.1.g	metric measurements;
			The student will plan and conduct
			investigations in which models are
Center of Gravity,			constructed to clarify explanations,
Pitch, Yaw	VA	SCI.5.5.1.j	demonstrate relationships, and solve needs
		Exploring the E 2010 Scier	
Virginia Caianaa		Standards of L	earning
Virginia Science Grade 6			
Activity/Lesson	State	Standards	
Activity/Lesson	State	Standards	The student will plan and conduct
			investigations in which one variable is
			manipulated over time, using many repeated
Jet Propulsion	VA	SCI.6.6.1.f	trials;
oct i Topulsion	VA	001.0.0.1.1	data are collected, recorded, analyzed, and
			reported using metric measurements and
Jet Propulsion	VA	SCI.6.6.1.g	tools;
Jet i Topulsion	VA	301.0.0.1.g	The student will plan and conduct
			investigations in which models and
			simulations are designed and used to
			illustrate and explain phenomena and
Jet Propulsion	VA	SCI.6.6.1.i	systems
oct i Topulsion	VA	001.0.0.1.1	The student will plan and conduct
			investigations in which a method is devised
			to test the validity of predictions and
Vectoring	VA	SCI.6.6.1.e	inferences;
Vectoring	771	001.0.0.1.0	The student will plan and conduct
			investigations in which one variable is
			manipulated over time, using many repeated
Vectoring	VA	SCI.6.6.1.f	trials;
, Jotoffing	V/1	501.0.0.1.1	The student will plan and conduct
			investigations in which data are collected,
			recorded, analyzed, and reported using
Vectoring	VA	SCI.6.6.1.g	metric measurements and tools;
Voctoring	V/ \	501.0.0.1.g	The student will plan and conduct
			investigations in which data are analyzed
			and communicated through graphical
Vectoring	VA	SCI.6.6.1.h	representation;
v cotoring	V /T	001.0.0.1.11	roprosontation,

			The student will plan and conduct
Center of Gravity,		0010041	investigations in which precise and
Pitch, Yaw	VA	SCI.6.6.1.b	approximate measurements are recorded;
			The student will plan and conduct
			investigations in which scale models are
Center of Gravity,			used to estimate distance, volume, and
Pitch, Yaw	VA	SCI.6.6.1.c	quantity;
			The student will plan and conduct
			investigations in which data are collected,
Center of Gravity,			recorded, analyzed, and reported using
Pitch, Yaw	VA	SCI.6.6.1.g	metric measurements and tools;
			The student will plan and conduct
			investigations in which models and
			simulations are designed and used to
Center of Gravity,			illustrate and explain phenomena and
Pitch, Yaw	VA	SCI.6.6.1.i	systems
		Exploring the Ex	
		2010 Science	
		Standards of Le	arning 
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		Exploring the Ex	
		2010 Science	
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Virginia Science	1 0 - 1 \		
Grades 7-8 (Physic		Otan danda	
Activity/Lesson	State	Standards	The student will plan and conduct
			The student will plan and conduct
			investigations in which independent and
let Drenuleien	\/A	SCI.7-8.PS.1.f	dependent variables, constants, controls,
Jet Propulsion	VA	301.7-6.23.1.1	and repeated trials are identified;
			The student will plan and conduct
			investigations in whichdata tables showing
			the independent and dependent variables,
let Drenuleien	\/A	CCL 7 0 DC 4 ~	derived quantities, and the number of trials
Jet Propulsion	VA	3CI.7-8.P3.1.g	are constructed and interpreted;
			The student will plan and conduct
			investigations in which research methods are
let Drepulaien	\/A	CCL 7 0 DC 4 1-	used to investigate practical problems and
Jet Propulsion	VA	SCI.7-8.PS.1.k	
			The student will plan and conduct
		0017	investigations in which models and
let Drendeleier	\/A	SCI.7-	simulations are constructed and used to
Jet Propulsion	VA	8.PS.1.m	illustrate and explain phenomena
			The student will plan and conduct
			investigations in which numbers are
., .		001 = 0 50 :	expressed in scientific notation where
Vectoring	VA	SCI.7-8.PS.1.e	
			c independent and dependent variables,
., .		001 = 0 = 0	constants, controls, and repeated trials are
Vectoring	VA	SCI.7-8.PS.1.f	identified;

			The student will plan and conduct
			investigations in which data tables showing
			the independent and dependent variables,
			derived quantities, and the number of trials
Vectoring	VA	SCI.7-8.PS.1.g	are constructed and interpreted;
			The student will plan and conduct
			investigations in which research methods are
			used to investigate practical problems and
Vectoring	VA	SCI.7-8.PS.1.k	questions;
		201-	
		SCI.7-	models and simulations are constructed and
Vectoring	VA	8.PS.1.m	used to illustrate and explain phenomena
			The student will plan and conduct
			investigations in which models and
Center of Gravity,		SCI.7-	simulations are constructed and used to
Pitch, Yaw	VA	8.PS.1.m	illustrate and explain phenomena; and
			The student will plan and conduct
			investigations in which data tables for
			descriptive statistics showing specific
			measures of central tendency, the range of
			the data set, and the number of repeated
Fuel Efficiency	VA	SCI.7-8.PS.1.h	trials are constructed and interpreted;
			The etudent will plan and conduct
			The student will plan and conduct
			investigations in which frequency
F F(f)		00170004	distributions, scatterplots, line plots, and
Fuel Efficiency	VA	SCI.7-8.PS.1.i	histograms are constructed and interpreted;
			The student will plan and conduct
		001-	investigations in which models and
		SCI.7-	simulations are constructed and used to
Fuel Efficiency	VA	8.PS.1.m	illustrate and explain phenomena